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before the faculty

John Francis Brooke - Virga -  
admitted March 29th 1820



## On Inflammation of The Knee Joint.

No joint in the human body is, perhaps, more exposed to accidents than that of the knee joint. Mechanics, and every class of mankind are liable to injuries of this joint, from falls blows and cutting instruments.

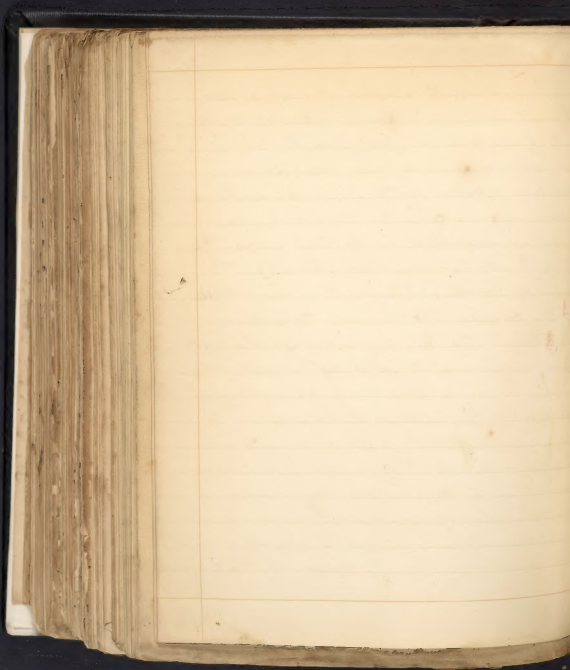
Since this is the case, I think the subject merits investigation, and, to avoid prolixity I have selected this joint as the subject of my Thesis.

The heads of the bones forming the knee joint are of a reticular substance. Nature has contrived this structure as to break the impetus of concussions arising from falls, blows, &c. These heads are, topped with cartilages which are smooth and polished on their surfaces, as to facilitate the motion of the joint. The cartilages in a healthy state are very insensible



which is, no doubt, so ordered by nature that the parts, in which motion is so essential, should not be rendered painful. These Cartilages are kept moist by a fluid called synovia which is secreted by the synovial membrane. There is also a capsular ligament. The bones are connected by two strong lateral ligaments at the sides, and, behind, by the crucial ligaments. Before, it is strengthened by the patella. The tendons of the extensor muscles of the leg have a considerable effect in forming, and strengthening the articulation.

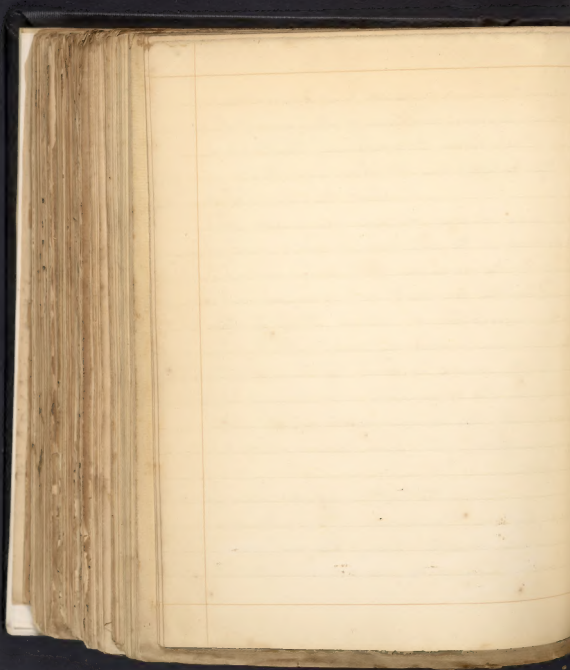
I have thus given a superficial view of the structure of the knee joint, merely to shew what kind of animal relations enter into its formation. I shall now endeavour to demonstrate why disease, either resulting from accident or from a specific action is so hard to combat in this joint; And why the energy of the



constitution is so crippled and enfeebled  
by an inflammation of this joint. And  
here I beg leave to advance the opinion  
of the celebrated Mr. John Hunter:

That the character of  
all local diseases differed very materially  
according to the situation, structure, and func-  
tions of the diseased part. When diseases  
are situated in parts which enjoy a vigo-  
rous circulation of blood through them,  
they assume a very different aspect from  
what they would do were they in a situation  
in which the circulation is naturally languid,  
or, in which, there are only comparatively speak-  
ing, few vessels that and those of a small  
diameter

When the part is highly organized  
and vascular, The disorder is generally more  
mild and tractable, than if the part were  
only furnished with small vessels that it



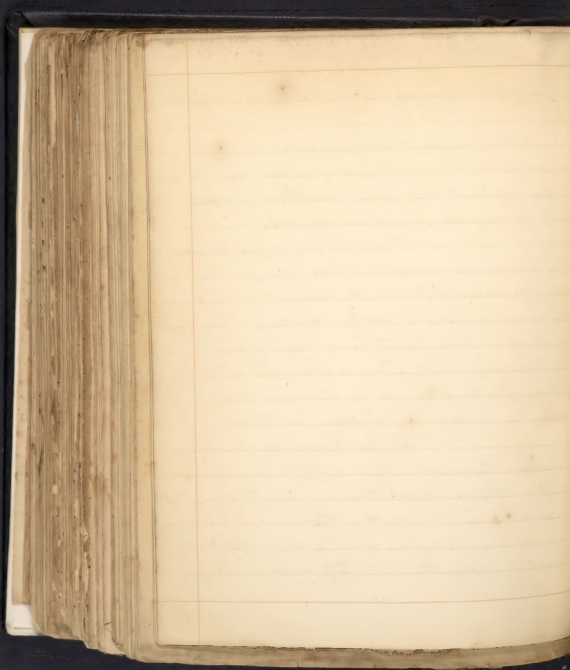


could not be rendered red by anatomical injections.

But, besides great vascularity and high organization of structure, a situation near the source of circulation seems often times to render parts left disposed to become diseased.

What Mr Hunter has advanced, experience has demonstrated to be ~~structure~~, and the ideas of this great observer of nature are no where more completely sacrificed, than in diseases of the joints, and, when ligaments, tendons, and cartilages are attacked with inflammation, they are by no means very vascular or highly organized substances.

Neither nerves nor absorbents have been traced in ligamentous and tendinous substances, But, there is no doubt of their existence as no part of the human body is more painful when diseased, and the process of ulceration will take place in them.



as in soft parts

Now as the bone is turned to  
the ligaments & tendons, and the bones  
covered by cartilages it explains why in  
inflammation of the joint it is hard to com-  
bat, and is severe upon the constitution re-  
ducing inflammatory fever, and delirium,  
and when respiration subsides a hectic  
state or fever attended with colluviation  
night sweat and diarrhoea, reducing  
the patient almost to the brink of the  
grave and demanding relief by amputa-  
tion. 2. nature relieves herself  
by an ankylosed state of the joint.

It is because the parts are  
deficient in vascularity and a high de-  
gree of organization. Besides the bone  
being remote from the source of circulation,  
nature cannot centre herself with more  
facility as in joints that are nearer



The Surgeon should therefore be upon his guard and use every precaution in his power to prevent an inflamed knee, and to moderate inflammation when it has taken place that it may not terminate in suppuration.

After having sketched so much I shall endeavour to describe the best mode & practice in a case of this kind. Gunwounds are the accidents that give origin to inflammation of this joint. It may arise from a blow, or a simple contusion. A strain is most generally the precursor of inflammation in this joint. It originates from falls, violent extension of the tendons of the knee, or from a twisting of the joint. The tendons and ligaments here are uncommonly stretched, so as to become very painful especially on moving the joint. There is also a stiffness. The best manner of treating a strain is,



no doubt, to keep the parts at rest, and, to effect this there is nothing better than the application of a limb. By this means we remove the parts and ward off inflammation. After the joint is taken off there is considerable stiffness in the joint but by exercising the limb this soon wears off.

Inflammation of the knee joint may arise from an incised wound; when this accident happens, if the wound is superficial it may not prove dangerous, but when the cavity of the joint is exposed it is by no means a promising case. There is an imperfection of cavity; the laws of the animal economy with respect to this are so well known for me to make mention of them. The edges of the wound should be brought together and retained by adhesive strips, so that union be the first intention may take place, and, every means used to guard against inflammation.





Lacerated wounds of the knee joint are much more dangerous than incised, because the cavity of the joint is generally more exposed and a large portion of parts killed and slough.

When inflammation of the knee joint occurs there is generally *preternatural* redness, increased heat, throbbing sensation, and pain, and swelling attended with inflammatory fever. The fever is generally *remittent* and the pain more acute than in the soft parts. There is an increased secretion of synovia, and a grating sensation is often perceived on moving the articulation. The capsular ligament thickens and coagulation or cragulating lymph may take place, in which the adjacent vessels shut and produce an organized body. The inflammation soon spreads through the tendons.



cartilages, and ligaments. When inflammation of the joint terminates in suppuration the consequences are terrible; sinusses form and the tendons and cartilages are discharged through them; the inflammation runs quick, and terminates in death and the life of the patient jeopardized. Sometimes the heads of the bones become carious: when we see such consequences resulting how much ought the surgeon to be on his guard, and endeavour, by all the means in his power to ward off this dreadful catastrophe. The abscesses in this case immediately go to work and the tendons, cartilages, and ligaments are absorbed leaving the heads of the bones naked. Here nature has not the power of restoring the disorganized parts and an anchylosis of the joint takes place.

Besides the consequences



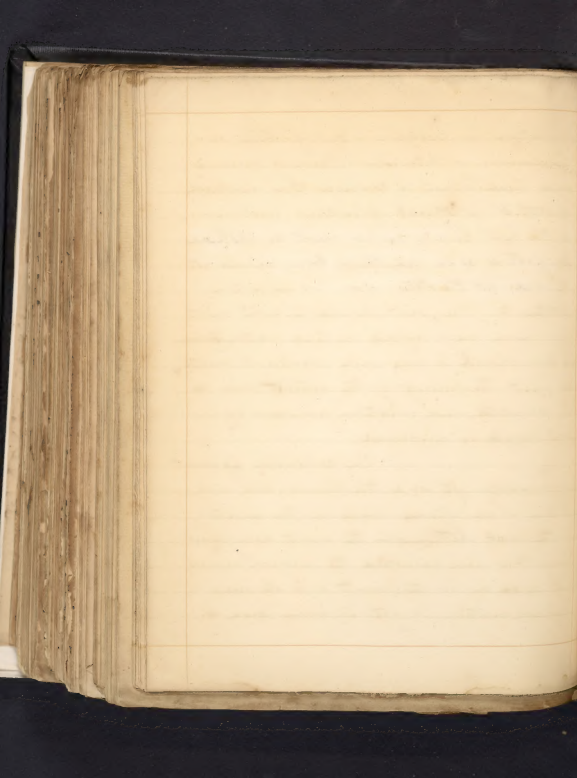
of an inflamed joint above mentioned,  
if a scrofulous diathesis of the system  
exists, this disease is apt to be excited  
into action, producing white swellings.  
I shall now endeavour to give an account  
of the best means of treating an inflam-  
ed knee joint.

The antiphlogistic measures  
should be pushed as far as nature can  
bear; blood-letting should be employed,  
both general, and topical. The patient  
to be kept in bed and laid in a  
horizontal posture, the knee elevated  
so as to retard the blood in the arterial  
and facilitate its return by the venous  
system. If the weather is uncommonly  
sultry and there is danger of Tetanus  
we may allow a generous diet, mode-  
rate stimuli, and an opium pill; at  
the same time making use of topical



depletion by leeches &c. But if there is no danger of Tetanus bleeding general and local must be carried to a reasonable extent. Of 77 topical bleeding leeching is the best 20 or 30 leeches must be applied purgatives, as in fractured bones, should not be used, but the other means of depletion trusted to. The joint should be kept moist by linen rags dipped in lead water. Fomentations should be used and emollient poultices; but the feelings of the patient should be consulted, and whatever remedy agrees best should be employed.

The capsular ligament is generally left in a thickened state, and there is an effused fluid in the cavity of the joint. Although the most dangerous symptoms have vanished, the surgeon should not relax in his treatment as a chronic inflammation is apt to ensue, and, as





nothing is more obstinate than when  
a chronic inflammation has supervened  
upon an acute one. This is strongly marked  
in phlegmatism. In this case we should  
blister the part, and keep up a discharge  
by saline ointment or by rubbing the  
blistered part with caustic

